

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE

(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

KEITH W. NASH & CO.
90-92 Regent Street
Cambridge CB2 1DP
ROYAUME-UNI

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Date of mailing (day/month/year) 26 January 2001 (26.01.01)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference C314.01/G	
International application No. PCT/GB99/02244	International filing date (day/month/year) 13 July 1999 (13.07.99)

1. The following indications appeared on record concerning:

☒ the applicant ☐ the inventor ☐ the agent ☐ the common representative

Name and Address

GENOMIC SOLUTIONS LIMITED
Forge Close
Little End Road
Eaton Secon
St. Neots
Cambridgeshire PE19 3TP
United Kingdom

State of Nationality

GB

State of Residence

GB

Telephone No.

Facsimile No.

Teleprinter No.

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☒ the person ☐ the name ☐ the address ☐ the nationality ☐ the residence

Name and Address

MASSLAB LIMITED
Crewe Road
Wythenshawe
Manchester
M23 9BE
United Kingdom

State of Nationality

GB

State of Residence

GB

Telephone No.

Facsimile No.

Teleprinter No.

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

☒ the receiving Office ☐ the designated Offices concerned
☐ the International Searching Authority ☒ the elected Offices concerned
☒ the International Preliminary Examining Authority ☐ other:

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Maria Victoria CORTIELLO Telephone No.: (41-22) 338.83.38
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PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C. 20231
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year)

14 February 2000 (14.02.00)

International application No.

PCT/GB99/02244

Applicant's or agent's file reference

C314.01/G

International filing date (day/month/year)

13 July 1999 (13.07.99)

Priority date (day/month/year)

17 July 1998 (17.07.98)

Applicant

DAVIS, Stephen, Charles et al

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

25 January 2000 (25.01.00)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Jean-Marc Vivet

Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

PCT

REC'D 28 NOV 2000

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference C314.01/G	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB99/02244	International filing date (day/month/year) 13/07/1999	Priority date (day/month/year) 17/07/1998
International Patent Classification (IPC) or national classification and IPC H01J49/40		
Applicant GENOMIC SOLUTIONS LIMITED et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 25/01/2000	Date of completion of this report 24.11.2000
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Zuccatti, S Telephone No. +49 89 2399 2710 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB99/02244

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).)*:

Description, pages:

1-20 as originally filed

Claims, No.:

1-16 as originally filed

Drawings, sheets:

1/5-5/5 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB99/02244

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application.

☒ claims Nos. 2-13.

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 2-13 are so unclear that no meaningful opinion could be formed (*specify*):
see separate sheet

☒ the claims, or said claims Nos. 2-13 are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos. .

2. A meaningful international preliminary examination report cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)

Yes: Claims 14-16

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB99/02244

	No:	Claims	1
Inventive step (IS)	Yes:	Claims	14-16
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-16
	No:	Claims	

2. Citations and explanations
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/CA99/02244

1. The present application does not meet the requirements of Article 6 and of Rules 5.1.iii and 6.3 PCT, because claim 1 is not sufficiently supported by the description, and essential features are missing.

1.1 The term "such that the time of flights ... are used for the purpose of improving ..." in claim 1 defines the invention in terms of a result to be achieved rather than giving clear structural features which are essential for the solution of the posed problem. According to the present description, the arrival times of the same m/z at the different detectors placed at different distances along the beam path, and the measured differences between the arrival times, are essential in order to increase the time resolution of the TOF spectrometer. These features are missing in claim 1, they are, however, present in claim 14. An apparatus without the features mentioned above is not supported by the description.

1.2 The terms "... a share of the beam ..." and "... for improving accuracy of measurement of the m/z values of ions" used in claim 1 are not sufficient for distinguishing the present invention from the TOF-systems disclosed in D1=WO-A-98/21742, D2=US-A-5331158 and D3=US-A-5619034.

The system according to D1 uses multiple detectors collecting different shares of the ion beam in order to increase the time resolution (see figure 1b, page 4, lines 15ff), the TOF spectrometer of D2 means for alternately mass analysing a part of the same ion beam with different detectors (see column 8, line 20 to column 9, line 2). The same is disclosed in D3 (see figures 1, 2; column 6, lines 33-48). In all cases, the result is, in a very general sense, an improvement in accuracy of measurement of the m/z values. Although neither of D1-D3 uses the same technique as proposed in the present application, their working principles are not excluded by the wording of the present claim 1. Consequently, the subject-matter defined in claim 1 can be considered as not new (Article 33.2 PCT).

2. A claim 1 including the features mentioned in point 1.1 above, and the claims dependent thereon, would meet the requirements of Articles 33.2 and 33.3 PCT (novelty and inventive step), since these features are not derivable from D1-D3.

2.1 The subject-matter of the methods defined in claims 14-16 are not disclosed in any of the cited documents. The respective subject-matter meets therefore the requirements of Articles 33.2,3 PCT.

3. The requirements of Article 33.4 PCT are obviously met by the present subject-matter.

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference C314.01/G	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 99/ 02244	International filing date (day/month/year) 13/07/1999	(Earliest) Priority Date (day/month/year) 17/07/1998
Applicant GENOMIC SOLUTIONS LIMITED et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of Invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☒ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1
☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 99/02244

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01J49/40

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 21742 A (DAVIS LARRY J ; ROCKWOOD ALAN (US); SENSAR CORP (US)) 22 May 1998 (1998-05-22) page 4, line 15 - page 5, line 2	1
A	page 7, line 26 - page 10, line 30; figures 4-8	2-16
X	US 5 619 034 A (REED DAVID A ET AL) 8 April 1997 (1997-04-08)	1, 14
A	page 6, line 32 - line 46; figures 2, 7, 8	2-16
X	US 5 331 158 A (DOWELL JERRY T) 19 July 1994 (1994-07-19) column 5, line 39 - line 62; figures 1, 2A, 2B	1



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

3 December 1999

Date of mailing of the international search report

10/12/1999

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Zuccatti, S

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 99/02244

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 641 919 A (DAHNEKE BARTON E) 24 June 1997 (1997-06-24) the whole document ---	1,14
A	COTTER R J: "TIME-OF-FLIGHT MASS SPECTROMETRY FOR THE STRUCTURAL ANALYSIS OF BIOLOGICAL MOLECULES" ANALYTICAL CHEMISTRY, US, AMERICAN CHEMICAL SOCIETY. COLUMBUS, vol. 64, no. 21, page 1027A-1039A XP000331156 ISSN: 0003-2700 page 1029, column 3, paragraph 3 -page 1030, column 1, paragraph 1 ---	1-16
A	POLLARD J E ET AL: "TIME-RESOLVED MASS AND ENERGY ANALYSIS BY POSITION-SENSITIVE TIME- OF-FLIGHT DETECTION" REVIEW OF SCIENTIFIC INSTRUMENTS, US, AMERICAN INSTITUTE OF PHYSICS. NEW YORK, vol. 60, no. 10, page 3171-3180 XP000071702 ISSN: 0034-6748 the whole document -----	1,14

INTERNATIONAL SEARCH REPORT

ation on patent family members

International Application No

PCT/GB 99/02244

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9821742 A	22-05-1998	US 5777326 A AU 7181898 A EP 0939970 A	07-07-1998 03-06-1998 08-09-1999
US 5619034 A	08-04-1997	NONE	
US 5331158 A	19-07-1994	DE 4341699 A GB 2273200 A JP 6215730 A	09-06-1994 08-06-1994 05-08-1994
US 5641919 A	24-06-1997	NONE	